UNIVERSITY OF CALIFORNIA, SAN DIEGO

"Systems and Structure; A Radicalized Approach to Making Choreography"

A Thesis submitted in partial satisfaction of the requirements

for the Degree Master of Fine Arts

in

Theatre and Dance (Dance Theatre)

by

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The Thesis of Sam Mitchell is approved and it is acceptable in quality and form for publication on microfilm and electronically:

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Chair

University of California, San Diego

2015

DEDICATION

To Judy Bauerlein and to Max Moon Mitchell

My love wanders the rooms, melodious,
flute notes, plucked wires,
full of a wine the magi drank
on the way to Bethlehem.

We are three. The moon comes
from its quiet corner, puts a
pitcher of water down in the
center.
The circle of surface flames.

One of us kneels to kiss the threshold-dust.

One drinks with wine-flames playing over his face.

One watches the gathering
and says to any cold onlookers,

This dance is the joy of existence.
Rumi

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ABSTRACT OF THE THESIS

"Systems and Structure; A Radicalized Approach to Making Choreography"

by

Sam Mitchell

Master of Fine Arts in Theatre and Dance (Dance Theatre)

University of California, San Diego, 2015

Professor Patricia Rincon, Chair

The shift and development of my choreographic process can be traced by drawing comparisons between the creation of my previous work, which was derived from a perceived narrative, to a more systematic choreographic process, such as the one that was used for the creation of my ThesisWorks dance piece, "Dunamis Novem". I will explore the methodologies used to create "Dunamis Novem" as a reflection of how my personal aesthetic has developed.

Introduction

At the age of eight, the two worlds of dance and theatre were irrevocably linked for me. The first "ballet" that I saw was actually a staged play of the Nutcracker that my third grade classmates presented on the school stage. At that moment, I aspired to be "up there" with my friends, hearing our voices resonate throughout the theater. The warmth of those old Fresnel lights beckoned to me. The melodic strains of Tchaikovsky's score seduced me. I wondered what it was like to disappear beyond the wings, onto the mystery offstage. My foray into theater is linked closely, geographically speaking, to my dance training. I began acting (with no formal training) when I was 19, in a small community theater in a Northern California town. A year later, I began taking ballet lessons next door to that theater.

Far into my dance career, while living in Santa Barbara, I ruptured my left Achilles' tendon. This occurred while taking a dance class with a director/choreographer whom I had worked for several years. I was subsequently "benched" for one season. While rehabilitating, I assisted the director in a variety of capacities, including stage manager, company manager and tour manager.

I worked for a small ballet studio as well, teaching, assisting, working at the front desk, as well as working within a marketing/public relation's position. Essentially, I felt it was important to stay involved with the dance community in any capacity, so that I might remain in conversation with the art form that I had dedicated so many years to, and receive the much needed encouragement from my peers to return to dancing

While working at the Montecito School of Ballet, I discovered that a Meisner acting class was being taught by a gentleman named Norman Schwartz. I enthusiastically

enrolled in his class. A typical class started with Norman bringing out a folding table and a receipt book, setting it up in the middle of the ballet studio and calling the students up to the front, one by one, making sure that our tuition bill was settled. We would then move into Meisner training exercises and then finally, scenes. The irony that this was all happening in the same ballet studio where I spent countless hours rehearsing and taking class did not escape me.

A year later, after fully recuperating from my injury, I re-entered the dance world, performing for two more seasons with Santa Barbara Dance Theater. I realized that the actors training that I received from Norman was the key to my recovery. The work that my fellow students and I accomplished in that short year provided me with a sense of belonging, as well as a deep regard to the training systems that exist within both the dance and theatre world. I have continued to study various acting techniques, including Meisner, Chekhov and Viewpoints/Suzuki/Composition with the SITI (Saratoga International Theater Institute) company. In addition, I've also held many technical positions within the theater and dance community. I have been a spotlight operator for Brecht's "The Resistible Rise of Arturo Ui", a soundboard operator for "The Aspern Papers" by Henry James, a dresser for José Rivera's "Cloud Tectonics", as well as a stage manager, set builder, light board operator and stagehand.

I mention these experiences only as a humble indication of the dedicated hours I've spent in dark theaters, classes, or studios, in conversation with fellow actor/performers, developing relationships around the ever-evolving process of negotiating, creating, always with the desire to communicate and reach the audience in effective ways. These experiences have shaped me into the artist that I am.

As I began to explore the creation of choreography and theatre, I relied strongly on the history and legacy of this training, there was a kind of intensity in which I placed the staging of cathartic experiences. My own personal, subjective view was wound very tightly with my identity. This was the center from which all my work expanded and contracted from. This was the "treasure" which I felt, needed to be excavated, at all costs, in the making and performing of not only my own work, but in all the work that I had subsequently performed in. There was always the "ME" centered in the work.

After many years of making dance and theatre, I began to feel a nameless burden. I had exhausted all the possibilities within the way that I was working. I wanted to continue in the rich tradition from which my training came from. I wanted to remain loyal to the unquestionable value of my beliefs and aesthetics, but there was the constant beckoning of innovation and experimentation.

There had been twenty-year hiatus since last enrolled within a university. Now, beginning my career at UCSD as an MFA candidate within the Dance Theatre program, I was forced to confront several questions. What would this next phase in my development as an artist look like? What were my values around art making? What was I bringing that was different from my colleagues? How could I approach new methodologies in the creation and understanding of new work? I entered into the program with excitement and enthusiasm. I was surprised when I discovered that my values seemed out of place within the environment of my department. To be clear, I was an outsider. Even if I wanted to work within the methodologies of my peers, I could not find a reference point for what those values and methodologies were. It seemed as though a "formulaic" approach was discouraged, and that if the terms for making new work were easily defined, that the

work in question must not be worthy of note. I was in a crisis. I found myself in a difficult place, because the values that I had been so invested in were, in my opinion, becoming self-conscious, brittle, and lackluster. I felt creatively paralyzed and lacked the ability to communicate the frustration of my ignorance

Wendell Berry said it best when he wrote, “The acquisition of knowledge always involves the revelation of ignorance - almost is the revelation of ignorance. Our knowledge of the world instructs us first of all that the world is greater than our knowledge of it.”

The focus of this thesis will center on the use of systems for creating, engaging, and analyzing the development and evolution of my dance theatre work. “Dunamis Novem”. Those elements that were formed in the creation of “Dunamis Novem” will be illustrated and analyzed in terms of systems, and finally, the results will be presented and discussed.

Chapter One

I confided with my friend of 20 years, Dr. Raymond Simmonds. As we sat on our surfboards, overlooking the break at Scripps pier, I expressed my confusion and surprise around the perceived ”imposters syndrome” that I was experiencing from within my program. I explained how there was a hesitation to surrender to my identity, given the (perceived) high regard for somatic studies and improvisation within the value system of my colleagues and faculty. We discussed historical signifiers in relation to the evolution of dance and theater making. I referred to Yvonne Rainer’s “No Manifesto”, as well as the elements of chance that John Cage and Merce Cunningham employed. I gave Dr. Simmonds a brief history on Brechtian principles and the notion of the alienation effect. Dr. Simmonds then alluded to his admiration of Brian Eno’s music and systems. Eno’s prodigious works span possibilities such as; music generated by software programs, or ambient music created by feedback loops, based on architecture or culture, or, the oblique strategies, which are a set of cards, designed by artist Peter Schmidt and Eno, which were used as a foil against creative stagnancy.

The cards, as described by Eno “Can be used as a pack (a set of possibilities being continuously reviewed in the mind) or by drawing a single card from the shuffled pack when a dilemma occurs in a working situation”. Dr.Simmonds then related how these ideas could be related to quantum physics, those systems that govern, “Nature in terms of possible realities with probable outcomes, with almost no predictable certainty.”

This was a conversation that effectively, illustrated the importance of systems within the creative process to me. Through this discussion, I considered the systems that I

used within the modalities of theater and dance. Typically, my approach seemed to move in the opposition or attraction to the work of others that either inspired me or disgusted me. When this notion was made apparent to me as the driving motivation behind my work, I found it completely abhorrent.

Principles around the creation of this kind of work were commonly situated around the idea of “it’s not this but that” or “I would do it this way”. Where once, I felt that my value as an artist was irrevocably linked to the experiences, triumphs and tribulations of my life, as well as my opinions and aesthetics, I now aspired to be surprised and engaged in a true, didactical sense, by developing new methodologies. I now had the goal of creating situations with collaborators that might, in turn, lead to surprising, unexpected, or elegant outcomes. I began to articulate a desire to shift focus from the individual and onto a more collective approach in making art. Obviously, systems needed to be considered and devised for this new approach, in order to clarify and define the rules of engagement for all those involved.

In her pioneering book “Thinking in Systems”, Donella Meadows expounds on the advantages of systems, “And that is the beauty of systems: They can work so well. When systems work well, we see a kind of harmony in their functioning. Think of a community kicking in to high gear to respond to a storm. People work long hours to help victims, talents and skills emerge; once the emergency is over, life goes back to "normal."

Chapter Two

First, we must understand and define the system as it stands in relation to the creation of choreography. For clarities sake, let us refer to Meadows conclusive description "A system isn't just any old collection of things. A system is an interconnected set of elements that is coherently organized in a way that achieves something. If you look at that definition closely for a minute, you can see that a system must consist of three kinds of things: elements, interconnections, and a function or purpose." If we are comparing a dance theatre piece to the model of a system, we could assert that the function of the work might be to entertain, educate, or elucidate the experience of the dance to the audience. We might also conclude that the "interconnectedness" exists between the "elements", such as the dancers, space and time. We could expand this paradigm to include music, text, lights, costume, choreography, or the physical actions that are to be performed on stage. If this system operates in an optimal state, we could assert that this system is coherent, that is to say that the all elements are interconnected and serving the purpose of the work.

Inspired and driven by this early conversation with Dr. Simmonds, I began to develop various mapping scores or structures, which could be rotated, inverted or manipulated to create a map for dance. I continued this exploration in several modalities. I first created a Cartesian grid and then overlaid onto that a spiral grid. This map was used in several mutations within the laboratory setting of Yolande Snaith's choreography class. My colleagues and I explored these experiments at length. We discussed the value of autonomy and choices being made within this framework. We examined the constraints around the structure of these maps. The tension that existed between these two

polarities seemed to be where possibilities existed. This is a phase I refer to as the implementation of structure. This was an archetypal or typical approach to choreography. The conditions and terms are defined and the work is made from this “agreement”. One could say that structures can define the “what”, but not the “how”. In the example of the “grid”, the dancers were given the choice to interact with this imaginary “map”, but nothing stood in their way if they decided to ignore these structures. In other words, the stakes were low. Tellingly, this resulted in a dance, which was predicable and conventional. One in which the dancers themselves seemed to appear unengaged and disinterested. In this phase, I began to experiment with limiting the number of choices. By doing so, I found that the performers had increased engagement with the material and the work itself could become more engaging.

In the dance theater piece “Huerta 13” I utilized the graphic novel “Love and Rockets” by Los Hernandez Brothers, as a departure point. In these novels, Mexican-American tropes are de-stabilized and radicalized. This is accomplished through the representation of women as powerful matriarchs who control the fictional town of Huerta. The men appear subservient and full of false bravado, pining for the affections of these “warrior” women. The de-stabilization of tropes is accomplished through depictions that approach the unsettling, the unpredictable, or the unexplainable. The function or purpose in the creation of this piece were; The need to de- familiarize the Chicano experience on the UCSD campus as an act protest over the lack of diversity within this climate, and the experimentation and deconstruction of staging dramatic tableaus as they related to the system of “Love and Rockets” The elements within “Huerta 13” consisted of Mexican cultural identities, the actual illustrations from the novel, the scenes that were

created in relation to the illustrations, props and sets, costumes, the music and the dancers. In analyzing the interconnections, the strongest manifestation were the direct correlations of scenes onstage to the actual illustrations. This was "lost" on the audience though. This was because the use of a digital projector was not employed, due to technical restrictions. "Love and Rockets" is a graphic novel that is known by a particular kind of subculture. A very small portion of the audience might realize that the title "Huerta 13" is referring to the graphic novel's fictional town. Most, however would need a reference point, a way in. In the next adaptation of this piece, I might consider the use of a 35mm slide projector, projecting these panels onto a cyclorama.

In the first year of the MFA program, my wife, son, and I had travelled to the town of Guadalupe, Arizona. We had gone there to take part in the Easter Ceremony, as I felt a desire to be more connected to my Yaqui culture. During the rituals, I saw hundreds of men and boys, dressed as "Fariseos" or Pharisee's, wearing black robes with masks, stomping on the ground, dirt rising into a cloud. As they stepped together through the town square, I tried to count the number of footsteps. I could not determine the pattern in which they followed. This was an image that I could not shake. I wanted to find a way to honor that movement, yet I did not want to appropriate this culture. This experience led to the next dance theatre piece I made entitled "Dee(a)r Spine". During the rehearsal process, I happened upon the discovery of the Fibonacci Sequence.. I determined that if I used the structure of the Fibonacci Sequence, expanding and contracting from within a self imposed score, the movement could become self-generative. In mathematics, the Fibonacci numbers could be defined as the first two numbers as either 1 and 1, or 0 and 1, depending on the chosen starting point of the sequence, and each subsequent number is

the sum of the previous two. In this case, I chose to build the phrase as follows: 1, 1, 2, 3, 5, 8, 13, and then reversing that, 13, 8, 5, 3, 2, 1, 1. This proved to be a pivotal discovery for me, as I found a way to be in the piece, and yet have the autonomy to work within a system that was not directly in conversation with the literal. In this shift, I recalled the conversation with Dr. Simmonds over systems, the self-generative work of Brian Eno, and the use of algorithms used in calculations, data processing, and automated reasoning.

I immediately notified Dr. Simmonds of this discovery and invited him to collaborate with me on my next project. We spoke on the phone for quite some time, discussing the timeline of the dance piece and what we thought we could bring into this collaboration. We addressed the differences and similarities of our respective disciplines, hypothesizing on the differences between goal directed, articulated work, (Science) and non-directional, process oriented work (Art). We merely observed these two approaches, without feeling the need to label them as good or bad, right or wrong.

Chapter Three

"But science and art meet on this ground, that both make men's life easier, the one setting out to maintain, the other to entertain us. In the age to come art will create entertainment from that new productivity which can so greatly improve our maintenance, and in itself, if only it is left unshackled, may prove to be the greatest pleasure of them all."-Bertolt Brecht

Dr. Simmonds and I wrote a preliminary proposal for our collaboration on February 9th, 2014. In this initial proposal, we discussed our interests and our areas of specialization. Central to our proposal was the integration of Eno's Oblique Strategies. We thought this was important, because we realized the likelihood of speaking two different languages. My language would be from the perspective of art making, process, design, somatic investigation and theatrical references. Dr. Simmonds language would be from the perspective of Quantum theory, references to scientific discovery, and investigative/theoretical approaches to particle research. We thought it might be advantageous to have a common language, so we chose the Oblique Strategies as that common language. We had several phone meetings with Dr. Simmonds explaining physics concepts to me, in which Simmonds referred to as "cartoon explanations. Some of these concepts were in relation to determinism/indeterminism, Einstein's quote that "God does not play dice", energy states, or eigenstates and random distributions. We discussed the temptation of using literal representation. It would be very easy to choreograph models of the particle world. One dancer could spin in circles to the right, the other left, and so on. It would also be very easy to project equations and computer

generated animations onto the screen behind the dancers. We agreed that we would not do these things. Our challenge was to "embody" these concepts, so that spaciousness could enter into the development of this work. I began by developing new approaches to movement. Typically, my dance training had been an integral part of my choreographic process. In other words, I worked from a certain physical vocabulary that could be identified as Limon training. As a way to destabilize this practice, I began with an investigation of Moshe Feldenkrais's Awareness Through Movement exercises. There are over 200 hours of audio lessons, available online, free to the public. I had taken a Feldenkrais class with Alison D. Smith in the spring quarter and I wanted to continue with the discoveries made from this class. Those discoveries had to do with effort and muscle tonus. How much effort is truly required if gravity is to do the work, from within the skeletal system? I discovered that I habitually approached movement from a heightened sense. Through the ATM exercises, I found other ways of working.

I began the summer by starting each rehearsal with an hour of ATM work, quietly and subtly investigating the way that my body moves, following the prompts of the audio lessons. I would then spend an hour improvising, moving from the reference point of the investigations that I had just done in the ATM lesson. After several months of this work, Dr. Simmonds and I decided that I should develop nine dance phrases based on quantized states, each level successively getting more energized, from a low state of energy to a higher state. As I improvised in the studio, the temptation to "show" these quantum concepts as I was beginning to understand them was too great. In my efforts to destabilize a literal or narrative translation, I utilized the Oblique Strategies from Brian Eno. A card

was drawn for each dance phrase that I created, which gave me the advantage of an outside perspective. For example, in the creation of the first phrase, I drew the card, “Ask your body” I knew that this first phrase was supposed to be a in low energy state, so I moved slowly, continually asking my body what the movement was. I could feel my back and my arms as I worked, so these approaches were incorporated into the choreography. I continued to work this way, with surprising results.

A video recording was made of all 9 phrases and then posted on Vimeo, clearly demarcating each one, i.e.; Phrase 1, Phrase 2, etc. Dr. Simmonds was sent the link to the Vimeo site and he and I reviewed each phrase, clarifying concepts around these various energy states. During the last week of summer, I scheduled individual rehearsals with each dancer, teaching them the material from the 9 phrases. As a way to keep things light, I jokingly referred to Phrase 1 as “Crumble the Cookie” Phrase 2 as “Hug the World”, and so on, creating a name for each phrase. I did this for several reasons. I wanted to develop trust with the dancers and I wanted to show them that this could be fun. Just because we were incorporating Quantum Physic concepts, there was no need to be stoic. We could still laugh at ourselves. We then all met for our first group rehearsal during the first week of fall quarter.

I was terribly excited to have such a talented team assembled. Each dancer brought a special quality to the project. Andromeda Bradley was a musician and dancer, and she would be creating some of the soundscapes for this piece. Anne Gehman was a local dancer and choreographer from the community. She was also an MFA student, entering her first year into the Dance Theatre program, as was Erin Tracy. Both Erin and Anne were professionals, who contributed much to the working environment of our

rehearsals. Sandra Ruiz was a dancer who had taken a class that I had taught the year before, and she made an impression on me. She was quiet and reserved, but when she moved, there was an undeniable power and presence in her body and in the space around her.

We continued to rehearse the 9 phrases until they could be drilled in and out of sequence. I continued the practice of filming rehearsals, regularly posting these videos on Vimeo for Dr. Simmonds to reference. Dr. Simmonds and I scheduled weekly Google Hangout video calls that spanned from one to two hours a session. In these sessions, we watched rehearsal videos, shared documents and looked over design schematics.

Dr. Simmonds used a random number generator program called MATLAB® to make a succession of sequences from 1 to 9. As described by the website Mathworks, "MATLAB® is the high-level language and interactive environment used by millions of engineers and scientists worldwide. It lets you explore and visualize ideas and collaborate across disciplines including signal and image processing, communications, control systems, and computational finance." This program proved to be invaluable to our research, as we utilized it in several incarnations, all of which I will elucidate in further detail later. The first test was based on a Boltzmann (thermal) distribution. Simmonds sent me scripts for each dancer, containing a total of 8 randomly generated sets of numbers that the dancers were going to dance. This set was referred to as the "Boltzmann Sequence"

As an example, this was the first set from a set of four as it appeared exactly on the page;

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I printed out the separate scripts and distributed them to the dancers. The dancers took some time, marking the steps while studying their scripts. We then ran through the entire set of 54 possible sequences, simultaneously. I could sense frustration in the air. This was not a particularly interesting way for dancers to work. I made a mental note of this, surmising that the next rehearsal might be an improvisational based one, as a way to bring the dancers back in. At the end of rehearsal, I found a script in which Sandra had written the "silly" names of the phrases next to the corresponding number. This told me two things. One, the dancers did not refer to the phrases in numeric form. They referred to them by the name we gave them in rehearsal. Two, we cannot treat the dancers as computers that are to be programmed. We needed to remember the human element and retain spaces for liminality and levity.

As a result, during the next rehearsal, I invited the dancers to pick 6 out of the 9 phrases and then create a gestural dance based on this. I then divided them into pairs and they taught each other their "small" dance. Then they combined or "married" the two individual sections together, and created duets from this material. The rate of efficiency was astounding. I believe this was because the dancers had a task, were able to create the work together, and were able to experience the satisfaction of seeing their work appear within a short amount of time.

In the following rehearsal, the dancers each created a dance imagining themselves immersed in a particle state. I incorporated a Tesla Plasma Ball image. They were asked to imagine a series 7 or 8 Tesla Plasma Balls in relative space around them. The balls were not to be in a static relationship but in an orbit around the dancers, which moved

correspondingly to their particular gravitational field. They were encouraged to find a correlating body part to touch the Tesla Ball, for example, their right knee might touch the first ball, then touch the top of their head to the second ball, and so on, until a phrase was made. Again, the amount of material that was generated from this rehearsal was considerable. I felt a sense of relief, because I was able to challenge and inspire the dancers, without the need for micromanagement. I also experienced a sense of freedom, because I did not feel solely responsible for the creation of choreography but was more of a facilitator.

Another improvisational system that was explored was one in which the dancers improvised with very sparse prompts. The playing space was defined by blue tape on the floor. The perimeters of Exit, Flow and Pause were explained. This was an improvisational score that I had learned from dance artist, Katie Duck. Exit meant to leave the playing space, stepping out of the space physically. Flow, meant movement or the flow of energy, even if it's in a low state. Pause meant to stay activated within the space by finding a place of settling. Perhaps the word stillness does not describe this, because we are never still. Silence. Pause equals movement silence. These improvisations were then recorded and referenced in great detail for the creation of solo and duet material.

Expanding on the pneumonic device that we had observed Sandra using, we designed a series of slides, using MATLAB® and PowerPoint. First, the coordinates for each section were entered, within a certain number of constraints. The end result was generated into a PowerPoint, which was then transferred to Adobe. Each slide was automatically timed to the speed of one second, thus creating the tempo for all the

material. Each dancer's name was listed in a specific text color, with the corresponding name of the phrase that they were to dance. This was used as a teleprompter, initially as a guide to sequence memorization. This method was used in the first studio showing, which was highly successful in consideration to the fast results that were yielded with little to no rehearsal time. The teleprompter gave the dancers specific reference points for complex sections and transitions. Given that most rehearsals were limited to four hours a week, sometimes less, I felt that this teleprompter was a powerful tool that enabled us to push forward.

The dancers did not always agree to this method. In one particular rehearsal, it seemed as if we hit an impasse. The dancers believed that this way of working was in conflict with their notions of how choreography was learned and rehearsed. I expressed my understanding but also challenged their notions of traditional approaches. "Dr. Simmonds and I are trying to create newer, more innovative ways around how this could be done.", I stated. I also expressed how we were under certain time constraints that did not allow us to use route memorization and traditional counts or breath cues. Eventually the dancers agreed to trying this new method, but not without reservations, understandably.

Simmonds and I were particularly inspired by Eno's formative album, "Discreet Music". We looked to the form in which he made tracks for this album. In one track, titled "French Catalogues", one could distinctly hear the various instruments from Pachelbel's Canon move in and out of unison. This model generated a phasing section in our dance, one that we referred to as the "Non-Canon". For this section, we assigned each dancer to an individual distinctive timing and phasing sequence. The dancers performed

all 9 phrases by beginning and ending together, but oscillating from within the structure. For example, it may take 8 counts for Sandra to perform phrase 1, while it takes Anne 16 counts to perform the same phrase. Another description would be to consider each dancer as an eigenstate, whereas Sandra remains constant, staying to the original timing of the phrase, Anne would speed up then slow down, Erin would slow down then speed up, and Andromeda would speed up, slow down, then speed up. All four dancers would "land" on the last three counts and complete them in unison. Again, Simmonds used MATLAB® as a way to expedite the process of deciphering complex counting hierarchies. The Teleprompters were once again used to great success, as these complex timings would have been difficult to translate in traditional approaches.

A Poisson (coherent) distribution section was also devised using MATLAB®. Simmonds again sent the scripts for each dancer, containing a total of 8 randomly generated sets of numbers that the dancers were going to dance. This set was referred to as the "Poisson Sequence" We found that this section was oddly hypnotic, much in the same way one could get lost looking at fire, or ripples in the water. We began to see what we called "Sparkle". This was the moment when one dancer "phased" through another. It was not the same as conventional unison, because these moments of sparkle arrived in surprising ways. For example, we may see one dancer perform the phrase we referred to as Kitty Kat. Then two other dancers join in Kitty Kat, until the entire trio disintegrates, only to have a duet emerging in which the phrase "Crumble the Cookie" appears. We were able to determine when those moments of correlation would happen by using MATLAB® but the human element was not factored in, which created a complexity from within.

Another non-traditional approach was taken when Dr. Simmonds and I created several documents, which we shared on the "cloud". This was accomplished through Google Docs. This completely transparent method was created to be used as a guide for the creative process. These documents included; a materials list, which included all phrases and sequences that had been created from each rehearsal, for reference. Note that Appendix 2 on page 24 was the Script that was used as the Master Document in which sections and their timings were listed and documented. This document could be used as a guide for the designers, stage managers and crew. Any changes made to the document could be made in real time to reflect the creative changes of the team. Simmonds and I also created a list of prompts, with specific timings, to serve as initial guides for the all the designers, including costume, lighting (see Appendix 3, Lighting Prompts for Dunamis Novem), music and set design. Despite the obvious advantages of sharing a common language, we discovered that only the lighting designer used this method. Based on this list of prompts, he was able to save an immense amount of time by building cues in "dry" tech and intuitively create looks for this dance. The other designers needed much more input and discussion to understand the concepts in which Simmonds and I were trying to convey. This is not a typical approach when working with designers. There is usually a considerable amount of discussion, then what I consider to be, research and development. The designer's work is very related to what the choreographer/director ultimately thinks is central to the piece. Our approach was to give the designers autonomy, so that the creative process could blossom.

The designer, Charlie Jicha was truly an asset to this project. He worked ahead of schedule, was always available to discuss ideas or concerns, and was entirely generous

throughout the entire design process. The advantage that I believe Jicha had was that he was a former gymnast. He understood physicality and utilized this knowledge with his fearless ideas. In the early stages, Jicha had made a model that the lighting and projection designer used to "play" with in the light lab. We were able to determine that this set of interweaving straps, stretching across the stage could function like sculpture, interacting with light and space. This sculpture proved to be an essential element within the work, and it was a seamless collaboration. In the next iteration of Dunamis Novem, I think it would be particularly interesting to find more interaction between the performers and the set.

Andromeda Bradley's contribution to the sonic score was informed, enthusiastic, and organic in her approach. We had the unique advantage of playing her sound designs in rehearsal and observing the interplay between sound and choreography. Bradley utilized her own unique solutions to arrive with results. In one meeting, she prepared a list of words as a way to determine my aesthetics and desires for this piece. When this approach didn't prove to be effective, she quickly switched strategies by having me draw the score as I imagined it. This seemed to help her gain perspective and she was able to complete the sound design by the time we entered into tech week. I would have liked to incorporate the Oblique Strategies into this process, which I made available to all the designers, but I respected Bradley's working methods. In the end, we used half of Brian Eno's music and half of Bradley's score, some of which featured myself on guitar.

Two lectures were given by Dr. Simmonds and I, in which we presented our research thus far. This was intended as a way to engage the scientific community from within the University. The first lecture was given on January 6th, 2015 at The Center for

Humanities. The second lecture was presented on January 7th, 2015 at the Center for Astrophysics and Space Sciences.

Conclusion

Dunamis Novem was created using atypical approaches to the choreographic and design process. This was the result of making an early agreement with Simmonds on how the work would be spoken about and negotiated. I believe this led to surprising results. The need for narrative or representation was eradicated by placing attention to the organization and articulation of a systematic approach. This resulted in an original Dance Theatre piece that was in my opinion, living in a world balanced by liminality and structure. The efficiency of this model proved to be valuable, in consideration of the various deadlines and time restrictions that were imposed, including preliminary proposals, design deadlines, tech week, and the availability of all four dancers as their schedules permitted. Instead of allowing these challenges to become detrimental to the creative process, they were acknowledged and integrated. The use of a clearly articulated Master Document or Script proved to be invaluable, as all changes were noted and addressed, so that the creative movement could be pushed forward, rather than stall on itself. The attention to the group as a creative force vs. the individual allowed Simmonds and I to develop strategies that were innovative and inventive. The teleprompter and the use of MATLAB® software gave Simmonds the latitude to contribute to this project, even though he lives over a thousand miles away. Through the various incarnations and phases of the teleprompter slides, we were able to match the need with the form. Simmonds and I were very pleased with the outcome and are continuing to develop this piece for the next iteration.

Appendix 1- Materials List

Dancers: Anne
Erin Andromeda Sandra

Phrases 1-9:

1. Crumble
2. Hug the world
3. Don't hug the world
4. Much Ado
5. Take a walk
6. Kitty Kat
7. Robot Girl
8. Old School
9. Changement

slower and faster

784 duets:
anne erin
andro and sandra

Tesla duets:
anne erin
andro and sandra

Assigned Sequences:

1. Tesla

a. sandra
b. anne
c. erin
d. andromeda

2. Imagined tesla sequence or follow the leader

. sandra
a. erin
b. andromeda

3. Oblique

. phrases
a. suggestions

4. Distributions

. Boltzmann
a. Poisson

Appendix 2-Script for Dunamis Novem

Pre Show Discreet Music 31:34 plays

Dancers enter in dark at 27:.00...slowly move toward light pool

Arrive at light pool at 30:08

Non-Canon Slides 1:26 minutes Discreet music ends

Ballroom step (Transition) .55 second Andromeda and Sandra exit

Anne and Erin Duet 2:27 min

Boltzmann Slides 4:30 minutes

Sandra Solo 1:35

Poisson Slides 4:36 minute

Entanglement Slides 4:40 minutes (3:45)

Andromeda solo 1:20

Total run time….30:00 minutes

Appendix 3-Lighting prompts Dunamis Novem

21:35	Expansion Contraction
11:46	Clarity
.55	Fragmented intellect
2:27	Joy
4:30	Decay
1:20	Passion
4:36	Acceleration
:26	Exhilaration
4:40	Beautiful nightmare
1:46	Revelation

Appendix 4- Proposal
Preliminary Production Needs 2014-2015
Graduate Dance Theatre
Date: 2-8-14
Sam Mitchell's Preliminary Ideas 1 and 2

1.Utilizing Brian Eno's "Oblique Strategies", Raymond Simmonds (a friend and Physicist at the National Institute of Standards & Technology in Boulder, CO) and I would use these strategies to create lateral thinking on our project. We would explore options offered by Eno such as :

- Use an old idea.
- State the problem in words as clearly as possible.
- Only one element of each kind.
- What would your closest friend do?
- What to increase? What to reduce?
- Are there sections? Consider transitions.
- Try faking it!
- Honour thy error as a hidden intention.
- Ask your body.
- Work at a different speed

Raymond would work in his field of expertise and I mine. After an amount of time, (two months) we would begin to create a work together, finding the similarities that exist with our processes and exploiting them. Ray and I have been friends for over 20 years, and have created dance work together in the past. We have never considered the similarities and differences between our work before, until now. My particular interests and fields of study thus far at UCSD are in creating maps and using them as movement scores, considering the space that I dance in as a constant state of flux varying between the tension of now and the tension of the past, (i.e.; all the performances that have occurred over the years in The Weiss, if I was performing there), through the use of randomization, allowing the "story" to be told in a completely unpredictable way, I'm interested overcoming the threshold of exhaustion in very physical way.

Raymond's interests are related to Physics, Mathematics, and Computer Science. He would like to help bring some of these concepts to dance. In particular, the way simple rules, algorithms, and randomization can lead to complex, aperiodic, and unpredictable behavior. For example, the laws of quantum mechanics are a particularly interesting set of rules that result in some very counterintuitive behavior. These postulates describe Nature in terms probabilistic outcomes, where any particular reality is selected at random. When evolving quantum mechanically, a system can explore all of its possible behavior at the same time. Two or more particles can influence each other through invisible correlations, also known as quantum entanglement. Actions on one particle influence all the entangled partners. In addition, systems with a large number of individual particles can produce collective or emergent phenomenon, unpredictable even

when the simple rules governing the behavior of the parts is known; behavior like superconductivity or superfluidity, where the flow of electrons or atoms is unimpeded at low temperatures. This phenomenon cannot be observed in any one of the individual parts, but is only seen in the collective motion of the entire system working together. Raymond finds these concepts fascinating, beautiful, and universal, applicable to many other fields.

2. Collaborating with Raymond, we would like to explore algorithms and apply set rules in a dance score so that the dance could become self-generative. This could be done is several ways. In the current piece that I am choreographing, I am using the Fibonacci Sequence to inspire choices both musically and physically. I have learned that the Fibonacci Sequence can be found in nature, for example, a pinecone or a flower. As the numbers increase in the sequence, a spiral begins and continues ad infinitum. We would apply the self-generative principles from the Fibonacci sequence and relate them to movement, creating causal relationships between dancers and aforementioned “rules”. The dance would become a living score that, because of variations in sequence, and moment-by-moment choices made by performers, would dynamically flow and change, not unlike the self-generating forms we see in nature.

Appendix 5-Abstract

Dr. Simmonds & Sam's Title: "Quantum Statistics: Affects on Human Dancers and the Observer"

Raymond Simmonds
Experimental Physicist / Lecturer
NIST / University of Colorado Boulder, Department of Physics
Sam Mitchell
Graduate Student, Department of Theatre & Dance
UCSD

Dr. Simmonds & Sam's Abstract: The Arts and Sciences may seem to be immiscible fields of study, even at odds with each other. In Leonardo Da Vinci's time these two fields were not polarized, in fact, they coexisted naturally. Despite the appearance of being far distant cousins, both artists and scientists share a creative gene, a passion for their work, and a brave curiosity that pushes them past current boundaries to explore the unknown. In this lecture, we will present some recent examples of those mixing these two worlds and our own attempts to do so with Dance Theater and Quantum Physics. While quantum mechanics is a well-established theory, proven true overwhelmingly by experiments, it is still confounding to most people, even those in science. At its heart, it describes nature in terms of possible realities with probable outcomes, with almost no predictable certainty. Experts still struggle to interpret its philosophical consequences and the notion that there may be no "objective reality". Even Albert Einstein, one of its co-creators, disapproved of its bazaar properties, saying that "God does not play dice with the universe". In the creation of this work, "Dunamis Novem", we have taken some of the probabilistic rules that govern quantum systems and integrated them into a creative process. The results are then born from an artistic aesthetic and an algorithmic code that produces dynamics that embody in some way randomness, concepts of "quantum entanglement", and the effects of observation or "measurement". Our work shows that "Science" can inspire and direct new forms of "Art", and we hope that the liminal world of "Art" can be an effective medium to transmit the sometimes counterintuitive results of empirical "Science" to a broader audience, also generating a dialogue between the two. We will describe the scientific concepts that currently inspire us, the process by which we convert quantum principles into movements, and the challenges of distilling this into a theatrical setting. We encourage everyone to attend the three concerts at the Mandell Weiss Forum Theater from January 23-25, 2015 at 7:30 pm.

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